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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,471	02/15/2006	John Sydney Robinson	4663-051882	7786

28289 7590 10/31/2007  
THE WEBB LAW FIRM, P.C.  
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EXAMINER

FIORITO, JAMES

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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10/31/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/541,471	ROBINSON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	James A. Fiorito	1754	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 28-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/06</u> .   | 6) <input type="checkbox"/> Other: ____                           |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 28-40 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zachariah US 2007/0207084.**

Zachariah teaches a process of making alumina particles wherein, at least one nonreactive salt (the matrix salt) is employed as an inexpensive and recyclable templating medium in the formation of nanoporous particles. The matrix salt is provided, along with at least one reactive precursor salt to form a precursor composition. The precursor composition is then spray pyrolyzed, by methods known in

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the art to form solid, preferably nanoporous porous particles of the precursor composition. The precursor salt and matrix salt are selected such that they can be spray pyrolyzed, they provide the desired nanoporous template structure, and they provide the desired material of the final particle. Zachariah teaches that the salt may be sodium fluoride, sodium chloride, potassium fluoride, or potassium chloride (Paragraph 24).

The matrix salt is generally nonreactive with the precursor salt, enabling it to form a nanoporous network that supports the structure of the particle formed by spray pyrolysis. The matrix salt may then be separated from the spray-pyrolyzed particle by rinsing, preferably in an aqueous rinse, to produce, preferably, a nanoporous particle. Any liquid may be used as a rinse, provided the matrix salt is soluble in the rinse. Preferable matrix salts are those that are soluble in an aqueous rinse at room temperature, providing an inexpensive, recyclable templating medium that is easily spray pyrolyzed, stable at relatively high temperatures, such as about 700 degrees C, and are easily separated from the spray pyrolyzed precursor composition to produce a nanoporous particle (Paragraphs 21-22).

Zachariah further taught that preferred methods of the present invention include pyrolyzing the precursor composition at a temperature that ensures decomposition of the precursor salt but does not exceed the melting point of the matrix salt. In the methods of Examples 8-12, the precursor composition including aluminum nitrate as the precursor salt and sodium chloride as the matrix salt was pyrolyzed at temperatures from about 200 degrees C. to about 800 degrees C. (Paragraph 77)

**Claims 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zachariah US 2007/0207084 in view of Mohri US 6521203.**

Zachariah does not expressly teach that the aluminum precursor is milled.

Mohri teaches a process of treating alumina or aluminum hydroxide, including the step of ball milling agglomerated coarse particles (Column 2 Lines 21-35).

At the time of invention it would have been obvious to a person of ordinary skill in the art to form the process of Zachariah to include the step of ball milling. The suggestion or motivation for doing so would have been to produce a product that did not contain agglomerated particles (Column 2 Lines 29-31).

**Claims 28-41 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2001058818.**

JP '818 teaches a platy  $\alpha$ - $\text{Al}_2\text{O}_3$  grain is produced by heating  $\gamma$ - $\text{Al}_2\text{O}_3$ . At this time,  $\text{Na}_2\text{SO}_4$  is used as a flux and the mixing ratio of the  $\text{Na}_2\text{SO}_4$  can be increased to increase the grain diameter of the resultant platy  $\text{Al}_2\text{O}_3$  grain. The average grain diameter of the platy  $\text{Al}_2\text{O}_3$  grain can be controlled to 3-5  $\mu\text{m}$  by changing the ratio of the  $\gamma$ - $\text{Al}_2\text{O}_3$ : $\text{Na}_2\text{SO}_4$  within the range of 1:(1-6) expressed in terms of molar ratio. The temperature when heat-treating the  $\gamma$ - $\text{Al}_2\text{O}_3$  is preferably regulated to  $\geq 900^\circ\text{C}$ . The  $\gamma$ - $\text{Al}_2\text{O}_3$  used as a raw material can be obtained by heat-treating  $\text{Al}_2(\text{SO}_4)_3$  which can be prepared by heat-treating  $\text{Al}_2(\text{SO}_4)_3$ . JP '818 also teaches that  $\text{AlF}_3$  may be used as the flux (Paragraph 2).

**Claims 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001058818 in view of Mohri US 6521203.**

JP '818 does not expressly teach that the aluminum precursor is milled.

Mohri teaches a process of treating alumina or aluminum hydroxide, including the step of ball milling agglomerated coarse particles (Column 2 Lines 21-35).

At the time of invention it would have been obvious to a person of ordinary skill in the art to form the process of JP '818 to include the step of ball milling. The suggestion or motivation for doing so would have been to produce a product that did not contain agglomerated particles (Column 2 Lines 29-31).

### ***Conclusion***

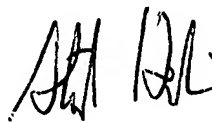
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on 9am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James Fiorito  
Patent Examiner  
AU 1754



STUART L. HENDRICKSON  
PATENT EXAMINER